

## Claims

1. An apparatus, comprising:

a primary antenna having a gain; and

a secondary antenna having a gain greater than the gain of the primary antenna.

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2. The apparatus of claim 1, wherein the gain of the secondary antenna is at least about 6 dBi.

3. The apparatus of claim 1, wherein the gain of the secondary antenna is at least about 12 dBi.

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4. The apparatus of claim 1, wherein the gain of the primary antenna is less than about 6 dBi.

5. The apparatus of claim 1, wherein the gain of the primary antenna is less than about 3 dBi.

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6. The apparatus of claim 1, wherein the primary antenna is a dipole antenna and the secondary antenna is a dipole antenna.

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7. The apparatus of claim 1, wherein the secondary antenna is a stacked dipole antenna.

8. The apparatus of claim 1, wherein the primary antenna is a dipole antenna, a microstrip patch antenna, or an inverted-F antenna.

9. The apparatus of claim 1, wherein the primary antenna is a transmit and  
5 receive antenna and the secondary antenna is a receive only antenna.

10. The apparatus of claim 1, further comprising a power amplifier (PA) having an output terminal coupled to the primary antenna via a switch.

10 11. The apparatus of claim 10, wherein the power amplifier has an output power of at least about 17 dBm.

12. The apparatus of claim 1, further comprising a low noise amplifier (LNA) having an input terminal selectively coupled to either the primary antenna or the  
15 secondary antenna.

13. An apparatus, comprising:  
a first antenna adapted to at least transmit signals; and  
a diversity antenna adapted to only receive signals and having a gain greater  
20 than a gain of the first antenna.

14. The apparatus of claim 13, wherein the gain of the diversity antenna is at least about 6 dBi.

15. The apparatus of claim 13, wherein the gain of the first antenna is less  
5 than about 6 dBi.

16. A system, comprising:  
a wireless local area network (WLAN) device comprising:  
a primary antenna having a gain; and  
10 a secondary antenna having a gain greater than the gain of the primary antenna.

17. The system of claim 16, wherein the WLAN device is an access point  
(AP).  
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18. The system of claim 16, wherein the secondary antenna has a gain of at least about 6 dBi and the primary antenna has a gain of less than about 6 dBi.

19. A method, comprising:  
20 receiving a first signal from a primary antenna; and  
receiving a second signal from a diversity antenna, wherein the diversity antenna has a gain greater than a gain of the primary antenna.

20. The method of claim 19, comparing the signal strength of the first signal to the signal strength of the second signal.

21. The method of claim 19, further comprising coupling an input terminal of a  
5 low noise amplifier (LNA) to the diversity antenna if the signal strength of the second signal is greater than the signal strength of the first signal.

22. The method of claim 21, further comprising transferring a transmission  
signal for transmission over the air from an output terminal of a power amplifier (PA) to  
10 the primary antenna.

23. A method, comprising:  
selectively switching between either a primary antenna or a diversity antenna to  
receive signals, wherein a gain of the primary antenna is less than a gain of the  
15 diversity antenna.

24. The method of claim 23, further comprising transmitting a signal using the primary antenna.

20 25. The method of claim 23, further comprising coupling an input terminal of a low noise amplifier (LNA) to the diversity antenna after comparing signal strengths of signals received by the primary and diversity antennas.